CONTEMPORANEOUS SPECTRAL IMAGING OF JUPITER BY CASSINI/VIMS AND GALILEO/NIMS: LATEST SCIENCE RESULTS

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We present the latest science results for Jupiter obtained in a joint observational campaign by the first two spectral imagers to be sent to the outer solar system – the Near-Infrared Mapping Spectrometer (NIMS) and the Visual and Infrared Mapping Spectrometer (VIMS) on board the Galileo and Cassini spacecraft. Their unique viewing geometry over phase angle together with their broad spectral coverage – from 0.7 to 5.2 μm for NIMS, and 0.3 to 5.2 μm for VIMS - enables NIMS and VIMS to observe a wide variety of atmospheric phenomena and processes. These include: (1) the vertical and spatial distribution and microphysical properties (size, shape, and composition) of stratospheric hazes and tropospheric clouds, (2) the distributions of condensable vapors (*e.g.*, water and ammonia) and disequilibrium species (*e.g.*, phosphine), diagnostic of meteorology and global circulation, (3) the distribution of species generated by auroral processes (*e.g.*, H3+), (4) methane fluorescence near 10-μ bar level, and (5) lightning. Some of the results to be highlighted include: (1) the first high S/N images of fluorescence covering the daylit hemisphere, and (2) the spatial distribution of discrete spectrally-identifiable ammonia ice clouds which cover ~1% of the planet, concentrated near the Great Red Spot, in the equatorial plume regions, and at northern temperate latitudes.